

VULCAN

Vulcan Industrial

Sentinel[®] Fluid Ends



Extended run life with simplified service.

Vulcan's Sentinel fluid end makes field maintenance quick and easy, engineered for compatibility with the FMC WQ2700, WQ3000, WQ3500 (10 inch stroke) or equivalent pumps.

When the pressure is on, you don't need the non-productive time (NPT) associated with complicated maintenance procedures. Our Sentinel fluid end is designed for both superior run life and streamlined field maintenance so you can keep the frac on track with maximum uptime. All with the resilience to deal with the higher pressures, sand concentration and corrosion potential of contemporary hydraulic fracturing operations.

When you put Sentinels in the field, you not only get fluid ends made to take abuse and proven to push run life to the limits—you also get a more efficient use of your maintenance crew, better utilization numbers and reduced total cost of ownership. All with the strength and service you've come to expect from the Vulcan name.

Run Longer, Repair Faster

- Extended service life and field serviceability features aid in reducing NPT in the field and improving overall project execution
- Engineered for more durability, a longer run life and better OPEX costs for the fleet overall
- Pumping chamber geometry engineered to reduce cross bore operating stress and extend fatigue life by up to 4X compared to competitor fluid ends
- Flexibility to run with any brand valve/seat, packing or other compatible replacement part
- Plug-and-play with compatible pumps
- Field serviceable sleeved packing bore design eliminates washout failures of the packing gland

General Specifications

- Quintuplex: 58.75" fluid end length, 10.5" centers
- Available with 4", 4.5" and 5" plunger sizes
- Constructed from Vulcan proprietary Advanced Stainless™, the industry's strongest grade of stainless steel



How does the Sentinel **stack up?**

Engineered for Demanding Wells

Today's hydraulic fracturing operations demand a level of performance that earlier generations of fluid ends just weren't able to deliver economically. From materials selection to design optimization, the Vulcan Sentinel was specifically engineered for more demanding modern frac jobs and their higher pressures, sand concentrations and corrosive fluids.

Design that Reduces Operating Stress

Most valve-over-valve designs run with intense stresses at the cross-bore intersection—promoting cracks and accelerating mechanical failure. But the Sentinel's optimized geometry, determined through advanced modeling, creates less stress to eliminate cross-bore cracking and unnecessary unit replacement.

Advanced Material for Longer Life

The Sentinel fluid end is constructed from Vulcan's proprietary grade of Advanced Stainless™, the industry's strongest and toughest grade of stainless steel. Advanced Stainless™ is engineered specifically for high-intensity hydraulic fracturing fluid end applications and delivers fatigue life up to 4X versus competitor stainless steel materials.

Proprietary Machining and Surfacing

Vulcan builds the Sentinel from a high-performance forging sourced at either an American or European forge—and goes above and beyond to enhance mechanical integrity. Our metallurgists oversee the application of a proprietary machining process that extends the life of the unit, as well as an advanced surface treatment to further extend fatigue life.

Sleeved Packing Bores

Sentinel fluid ends are engineered with a field serviceable sleeved packing bore which allows for streamlined maintenance in the field. This design feature eliminates the failure modes of a possible washed-out packing bore or seized/damaged packing nut threads, reducing cost and the risk of NPT for the operator.

Flexibility with Consumable Parts

Rather than locking you into a specific brand, the Sentinel is designed to use any common valves, seats or packing sets that fit specification. That means easier logistics and more flexibility in sourcing. Of course, to get more from your consumables, ask your Vulcan representative about Certified Vulcan Parts.

For more details on the Vulcan Sentinel, or to arrange a field trial accompanied by a Vulcan Industrial representative, call **855.688.5226**.

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